

Notice of Allowability

Application No.

10/604,056

Examiner

Eric B. Chen

Applicant(s)

WILLE ET AL.

Art Unit

1765

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 14 November 2005.
2. ☒ The allowed claim(s) is/are 1-11, 13-27, 29-45 and 47-97.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____ |

REASONS FOR ALLOWANCE

1. Claims 1-11, 13-27, 29-45 and 47-97 are allowed.
2. The following is an examiner's statement of reasons for allowance for claims 1, 15, and 33: the prior art fails to teach or suggest depositing a layer of barrier material that *substantially blocks impurity diffusion from an underlying interlevel dielectric into an imaging material on the layer of planarizing material*. The closest prior art, Tsai, teaches forming a barrier layer to protect a via contact hole from poisoning (column 6, lines 12-28). Tsai further teaches forming the barrier layer (250) on the sidewalls of the contact hole (245) (column 6, lines 53-57; Figure 2F). However, there is not motivation or suggestion of forming a barrier material that substantially blocks impurity diffusion from an underlying interlevel dielectric into an imaging material on the layer of planarizing material, as in the context of claims 1, 15, and 33.
3. The following is an examiner's statement of reasons for allowance for claims 52, 66, and 83: the prior art fails to teach or suggest depositing a barrier material of silicon dioxide on the layer of planarizing material. The closest prior art, Tsai, forming the silicon oxide barrier layer (250) on the sidewalls of the contact hole (245) (column 6, lines 53-57; Figure 2F). However, there is not motivation or suggestion of depositing a barrier material of silicon dioxide on the layer of planarizing material, as in the context of claims 52, 66, and 83.
4. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

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accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

5. Applicant's arguments, (Applicants' Remarks, pages 20-21), filed Nov. 14, 2005, with respect to the rejection of claims 1, 15, and 33 under 35 U.S.C. 103(a) as unpatentable over Hussein, in view of Tsai, have been fully considered and are persuasive. Applicants have pointed out that the Tsai reference does not teach the claim limitation of "forming a barrier material that substantially blocks impurity diffusion from an underlying interlevel dielectric into an imaging material on the layer of planarizing material." The rejection of claims 1, 15, and 33 has been withdrawn.

6. Applicant's arguments, (Applicants' Remarks, pages 20-21 and 26-27), filed Nov. 14, 2005, with respect to the rejection of claims 52 and 66 under 35 U.S.C. 103(a) as unpatentable over Hussein, in view of Tsai; and claim 83 under 35 U.S.C. 103(a) as unpatentable over Hussein, in view of Tsai, in further view of Wolf, have been fully considered and are persuasive. Applicants have pointed out that the Tsai reference does not teach the claim limitation of "depositing a barrier material of silicon dioxide on the layer of planarizing material." The rejection of claims 52, 66, and 83 has been withdrawn.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric B. Chen whose telephone number is (571) 272-2947. The examiner can normally be reached on Monday through Friday, 8AM to 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine G. Norton can be reached on (571) 272-1465. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

EBC
Nov. 21, 2005

NADINE G. NORTON
SUPERVISORY PATENT EXAMINER